

- 1     1.     A diaphragm tank, comprising:  
2             an outer shell;  
3             a flexible diaphragm;  
4             a liner sealingly connected to the flexible diaphragm to define a bladder, the liner  
5                 including an orifice and a raised portion surrounding the orifice defining  
6                 an annular groove;  
7             a passage fitting providing fluidic communication between an exterior of the outer  
8                 shell and the bladder and having a neck;  
9             an o-ring disposed in the annular groove;  
10            an annular holder mounted on the passage fitting and having a groove, the annular  
11                 holder adapted to rest on the raised portion and retain the o-ring within the  
12                 annular groove; and  
13            a gasket disposed between the liner and the outer shell;  
14            wherein a portion of the neck is bent to retain the holder against the o-ring,  
15                 thereby preventing fluidic communication between a space between the  
16                 liner and the outer shell and the bladder along an outer wall of the passage  
17                 fitting.
- 18     2.     The diaphragm tank of claim 1, wherein the passage fitting is disposed partially  
19             inside the outer shell and partially outside the outer shell and comprises a  
20             shoulder adapted to restrict motion of the passage fitting into diaphragm tank.
- 21     3.     A diaphragm tank, comprising:  
22             an outer shell;  
23             a flexible diaphragm;  
24             a liner sealingly connected to the flexible diaphragm to define a bladder, the liner  
25                 including an orifice and a raised portion surrounding the orifice defining a  
26                 relief surface;  
27             a passage fitting providing fluidic communication between an exterior of the outer  
28                 shell and the bladder and having a neck;

1 an o-ring disposed on the relief surface;  
2 an annular holder mounted on the passage fitting and having a groove, the annular  
3 holder adapted to retain the o-ring on the relief surface; and  
4 a gasket disposed between the liner and the outer shell;  
5 wherein a portion of the neck is bent to retain the holder against the o-ring,  
6 thereby preventing fluidic communication between a space between the  
7 liner and the outer shell and the bladder along an outer wall of the passage  
8 fitting.

9 4. The diaphragm tank of claim 3, wherein the passage fitting is disposed partially  
10 inside the outer shell and partially outside the outer shell and comprises a  
11 shoulder adapted to restrict motion of the passage fitting into diaphragm tank.

12 5. A liner for use with a diaphragm tank and a through-wall connector, the through-  
13 wall connector comprising a passage fitting having a neck and adapted to extend  
14 into the diaphragm tank, an o-ring mounted on the passage fitting, an annular  
15 holder mounted on the passage fitting and having an annular groove, wherein:  
16 the liner has a raised portion defining an annular groove to receive the o-ring, and,  
17 when the neck is bent over the holder, the annular groove on the holder  
18 fits around the raised portion and the o-ring, thereby preventing fluidic  
19 communication from an exterior side of the liner to an interior side of the  
20 liner along an outer surface of the passage fitting.

21 6. A liner for use with a diaphragm tank and a through-wall connector, the through-  
22 wall connector comprising a passage fitting having a neck and adapted to extend  
23 into the diaphragm tank, an o-ring mounted on the passage fitting, an annular  
24 holder mounted on the passage fitting and having an annular groove, wherein:  
25 the liner has a raised portion having a relief surface on which the o-ring is  
26 disposed, and, when the neck is bent over the holder, the annular groove  
27 on the holder fits around the o-ring disposed on the relief surface of the  
28 passage fitting, thereby preventing fluidic communication from an exterior

1 side of the liner to an interior side of the liner along an outer surface of the  
2 passage fitting.  
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